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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,808	01/12/2001	Mark Poletti	0074-26485GW	5524

110 7590 03/28/2005

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PHILADELPHIA, PA 19103-2307

EXAMINER
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CHAU, COREY P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/673,808

Applicant(s)

POLETTI, MARK

Examiner

Corey P Chau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-8 and 12 is/are rejected.
- 7) ☒ Claim(s) 3-4,10-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 8 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5555306 to Gerzon.

3. Regarding Claim 1, Gerzon discloses an audio signal processing providing simulated source distance control (i.e. an in-line early reflection enhancement system)(Fig. 10) comprising: multiple inputs for receiving multiple input signal from one or more microphones positioned close to one or more sound sources within a room or other spaces so as to detect predominantly direct sound (i.e. the invention may be used with natural early reflection simulation means, whereby the natural monophonic or stereophonic early reflections at a source distance  $d$ , measured by a microphone system having an omnidirectional energy response to reflection, in response to a monophonic source signal, are used to implement an early reflection) (column 16, lines 40-51); an early reflection generating stage (Figs. 1-3, 6 and 10 ) which has a finite impulse response ( $1, 1_a, 1_b, 1_M, 1_D$ ) (Fig. 4) and which without internal feedback generates a number of delayed discrete reproductions of the input signals and which has unitary power gain whereby the stability of the system is independent of delay is independent of delay times and amplitudes (i.e. the gain means 13<sub>i</sub> constitutes in this

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case  $G_i$  times a unitary or orthogonal  $m \times m$  matrix means)(Figs. 1-3, 6 and 10; column 7, line 45 to column 8 line 26); the early reflection generation stage comprising at least one cross-coupling matrix which is an orthonormal cross-coupling matrix (i.e. early reflection simulator, unitary and orthogonal matrices are themselves orthonormal)(column 7, line 45 to column 8 line 26); and a number of loudspeakers placed to broadcast said delayed discrete reproductions of the microphone signals into the room or other spaces (outputs from 9L and 9R).

4. Regarding Claim 5, Gerzon as modified discloses each input is coupled to every output to provide a maximization of diffusion of the input signals to all of the outputs (i.e. each input of matrix 51 is coupled to every output of matrix 51, therefore providing a maximization of diffusion. Early reflection simulator has each input coupled to every output, therefore providing a maximization of diffusion)(Fig. 10; equations 44 and 45).

5. Claim 8 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

6. Claim 12 is essentially similar to Claim 5 and is rejected for the reasons stated above apropos to Claim 5.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5555306 to Gerzon in view of PCT/NZ93/00041 to Poletti.

9. Regarding Claim 6, Gerzon discloses an audio signal processing providing simulated source distance control (i.e. an in-line early reflection enhancement system). It is obvious to one having ordinary skill in the art at the time the invention was made to combine the audio signal processing providing simulated source distance control with a wideband non-in-line assisted reverberation system in order to improve and control the acoustic of a concert hall or auditorium (page 1, paragraph 0001). Poletti discloses a wideband assisted reverberation system which increases apparent room volume, including multiple loudspeakers to broadcast sound into the room, and a reverberation matrix connecting a similar bandwidth sound from each microphone through one or more reverberators having an impulse response consisting of a number of echoes the density of which increases over time, to one or more loudspeakers (claims 1 and 2).

10. Regarding Claim 7, Gerzon as modified discloses an audio signal processing providing simulated source distance control (i.e. an in-line early reflection enhancement system). It is obvious to one having ordinary skill in the art at the time the invention was made to combine the audio signal processing providing simulated source distance control with a wideband non-in-line assisted reverberation system in order to improve and control the acoustic of a concert hall or auditorium (page 1, paragraph 0001). Poletti discloses said wideband non-in-line assisted reverberation system the reverberation matrix connects a similar bandwidth signal from each microphone through one or more

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reverberators to at least two loudspeakers each of which receives a signal comprising a sum of at least two reverberated microphone signals (claims 1, 2, and 3).

***Allowable Subject Matter***

11. Claims 3, 4, 10, and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

12. Applicant's arguments with respect to claims 1, 3-8, and 10-12 have been considered but are moot in view of the new ground(s) of rejection.

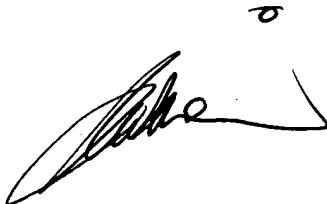
***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P Chau whose telephone number is (703)305-0683. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Sinh can be reached on (703)305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 18, 2005



**XU MEI**  
**PRIMARY EXAMINER**